FLORIDA DEPARTMENT OF Environmental Protection

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Governor

Jeanette Nuñez
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Secretary

VIA EMAIL
Read receipt requested

September 13, 2023

Dana Denson, Coordinator
Macroinvertebrate Biology Department
Environmental Sciences Division
Central Florida Tourism Oversight District
Email: ddenson@rcid.org

Re: Final Audit Report for Stream Condition Index Laboratory Records Audit of Reedy Creek Improvement District (Central Florida Tourism Oversight District)

Dear Mr. Denson:

Thank you for responding to the preliminary audit report for this Stream Condition Index (SCI) Laboratory Records Audit. The Florida Department of Environmental Protection (department) has reviewed your response and determined that the taxonomic data produced by the Central Florida Tourism Oversight District (formerly known as Reedy Creek Improvement District) meet the department's data quality objectives upon implementation of corrective actions from this audit.

Attached is the final audit report detailing the audit procedure, details of the department's review, and the department's recommendation for usability of the data. The final audit report will also be posted on the department's website at https://floridadep.gov/dear/florida-dep-laboratory/content/fdep-biological-and-audit-report-search. As noted in the report, the department's Aquatic Ecology and Quality Assurance Section has determined that your invertebrate taxonomy analysis procedures after implementing corrective actions from this audit meet the data quality objectives for SCI data for the sample types covered in this audit, and recommends that the data may be used for DEP related purposes and in support of the scope of projects covered in this audit. The usability of the audited data for other purposes must be determined separately according to applicable requirements in Rule 62-160.670, Florida Administrative Code (F.A.C).

Under Chapter 120 of the Florida Statutes, you and any other person whose substantial interests are affected by the department's agency action may challenge the attached final audit report, including the corrective actions and the data usability analysis. The process to challenge any portion of this agency action is described below in the Notice of Rights section.

If you have any questions or concerns about this final audit report, please feel free to contact Sarah Noble at (850) 245-8533 or Joy Jackson at (850) 245-8074.

Notice of Rights

This action is final and effective on the date mailed (via e-mail) unless a sufficient petition for an administrative hearing is timely filed under sections 120.569 and 120.57 of the Florida Statutes as provided below. If a sufficient petition for an administrative hearing is timely filed, this agency action becomes only proposed agency action, subject to the result of the administrative review process. Therefore, on the filing of a timely and sufficient petition, this action will not be final and effective until further order of the department. Because an administrative hearing may result in the reversal or substantial modification of this action, the petitioner is advised not to proceed until the deadlines noted below for filing a petition for an administrative hearing or request for an extension of time have expired. Mediation is not available.

A person whose substantial interests are affected by the department's action may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received by the clerk) in the Office of General Counsel of the department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000. The petitioner shall also mail a copy of the petition to the Central Florida Tourism Oversight District, at the address indicated above, at the time of filing.

Under rule 62-110.106(4), F.A.C., a person whose substantial interests are affected by the department's action may also request an extension of time to file a petition for an administrative hearing. The department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, before the applicable deadline. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon. If a request is filed late, the department may still grant it upon a motion by the requesting party showing that the failure to file a request for an extension of time before the deadline was the result of excusable neglect.

If a timely and sufficient petition for an administrative hearing is filed, other persons whose substantial interests will be affected by the outcome of the administrative process have the right to petition to intervene in the proceeding. Intervention will be permitted only at the discretion of the presiding officer upon the filing of a motion in compliance with rule 28-106.205, F.A.C.

In accordance with rules 28-106.111(2) and 62-110.106(3)(a), F.A.C., petitions for an administrative hearing by the petitioner must be filed within 21 days of receipt of this written notice. Petitions filed by any persons who were not entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within 21 days of publication of the notice, if published, or within 21 days of receipt of the written notice, whichever occurs first. Under section 120.60(3) of the Florida Statutes, however, any person who has asked the department for notice of agency action may file a petition within 21 days of receipt of such notice, regardless of the date of publication.

The failure of any person to file a petition for an administrative hearing within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 of the Florida Statutes.

A petition that disputes the material facts on which the department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination; (c) A statement of when and how the petitioner received notice of the agency decision; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts on which the department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301, F.A.C. Under paragraphs 120.569(2)(c) and (d) of the Florida Statutes, a petition for administrative hearing must be dismissed by the agency if the petition does not substantially comply with the above requirements or is untimely filed.

This agency action constitutes an order of the department. Subject to the provisions of paragraph 120.68(7)(a) of the Florida Statutes, which may require a remand for an administrative hearing, the applicant has the right to seek judicial review of the order under section 120.68 of the Florida Statutes, by the filing of a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the Clerk of the department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000; and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days from the date when the final order is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

David Whiting, Deputy Director
Division of Environmental Assessment and Restoration
2600 Blair Stone Road
Tallahassee, FL 32399
Tel No.: (850) 245-8191

Attachments:
Final Audit Report

Copies furnished to:

Kenneth Hayman, DEP Office of General Counsel
Jessica Mostyn, DEP Watershed Assessment Section
File

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this agency action, including all copies, was e-mailed before the close of business on 9/13, 2023, to the above listed persons.

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to 120.52(7)
Florida Statutes, with the designated Department Clerk,
receipt of which is hereby acknowledged.

Ashley Phillips 9/13/2023
Clerk Date

Final Audit Report

Central Florida Tourism Oversight District

Stream Condition Index Laboratory Records Audit

Aquatic Ecology and Quality Assurance Section
Water Quality Standards Program
Division of Environmental Assessment and Restoration
Florida Department of Environmental Protection

September 2023

STREAM CONDITION INDEX LABORATORY RECORDS AUDIT REPORT

Scope of Audit

The Central Florida Tourism Oversight District (CFTOD), formerly known as Reedy Creek Improvement District (RCID), Environmental Services Laboratory processes and identifies Stream Condition Index (SCI) samples and submits the resulting data to the Florida Department of Environmental Protection (DEP or department) for waterbody assessment per 62-303, Florida Administrative Code (F.A.C.), the Impaired Waters Rule. The DEP Aquatic Ecology and Quality Assurance Section (AEQAS) initiated a records audit of the CFTOD SCI laboratory to ensure their processes adhered to DEP SOP SCI 2000, the DEP standard operating procedure (SOP) applicable to SCI sample processing. This audit assessed items that can be evaluated via laboratory records provided by CFTOD and covers the scope of samples that CFTOD processed for DEP-related projects between June 2015 and January 2023, which includes thirty-two (32) SCI samples.

On February 1, 2023, DEP auditors requested records for samples processed between June 2015 and January 2023. The requested records were received on February 2 and February 20, 2023. DEP requested additional records on April 26, and received them May 1, 2023. This additional request was made to ensure a more recent sample was reviewed as part of this audit. Table 1 lists the samples that were reviewed as part of this audit, including the site and date of collection. The first three of these samples were used as Taxonomic Quality Assurance reviews. CFTOD's staff sorted, identified the samples to the lowest practical level, and calculated individual metrics and the final SCI scores.

Records Evaluated:

- List of the taxonomic keys most consulted in the lab (requested a minimum of the ten most relied upon; online references are acceptable if regularly consulted).
- List of taxa in the lab's specimen reference collection, including the verifying taxonomists' names.
- Sorting efficiency tracking records for employees associated with requested samples.
- Taxonomic quality control tracking records for employees associated with requested samples.
- Brief description of lab protocols for precautionary and corrective measures taken if sorting. efficiency or taxonomic QC results fail to meet the required targets.
- All records and taxa lists associated with requested samples.

Table 1. Stream Condition Index samples reviewed as part of this audit.

Sample Date	Site Name	Sample ID	Site Description	Taxonomist
6/1/2015	STW-1M	150701	L-101 Canal at Buena Vista Drive	Dana Denson
8/6/2016	C-5M	160870	L-103 Canal downstream of Buena Vista Drive	Dana Denson
12/6/2016	STW-1M	161480	L-101 Canal at Buena Vista Drive	Weldon Lavigne
2/9/2022	STW-4M	220098	Reedy Creek at US 192	Dana Denson

Findings

A preliminary audit report was sent to CFTOD on May 3, 2022, and CFTOD provided responses to the preliminary report on July 14, 2023. An additional update was sent on August 8, 2023, in response to a partially incomplete table (Table 2). The auditor discovered several issues in taxa assignments and individual metric calculations that resulted in incorrect SCI scores. There were multiple discrepancies in terms of which organisms were included in the various metrics, most notably the clinger metric, which resulted in inflation of three of the four SCI scores examined. DEP found that CFTOD's responses and proposed corrective actions were acceptable. CFTOD has revised the calculations and corrected scores were re-submitted to the DEP Watershed Assessment Section.

Lab Quality System

CFTOD maintains copies of pertinent taxonomic identification keys for specimens encountered in the samples processed as part of this audit.

According to the "RCID reference collection taxa and verifiers" file, CFTOD has 411 specimens that have been externally verified by recognized experts in Florida macroinvertebrate taxonomy. DEP compared the taxa list from the samples reviewed as part of this audit and noted that several taxa from the samples were not represented in the reference collection list. Several of the taxa were mentioned in the separate full report files as having been verified but this was not reflected in the reference collection list supplied and others had not been externally verified. In a previous audit of CFTOD's macroinvertebrate laboratory conducted in 2016, CFTOD's externally verified reference collection contained nearly 800 specimens. Thus, it appears CFTOD submitted an incomplete list as part of this audit. DEP requested a full list of externally verified specimens in response to the preliminary report. In their response to the preliminary audit, CFTOD submitted an updated reference collection list that included 809 specimens that had been externally verified. All but 5 taxa represented in the samples reviewed as part of this audit were in the revised list received on July 14, 2023.

Sample Sorting and Identification Process

Overall, CFTOD is properly following DEP SOPs for sample sorting and identification except for those noted below and in Table 2.

Sample Sorting QC

According to a description of their sorting QA-QC protocols for SCI samples, CFTOD has a qualified technician randomly select 10% of all SCI replicates to be resorted. If the initial sort falls below the minimum 95% efficiency a re-evaluation of sorting method and process is made, and changes initiated. According to the files submitted all analysts (J. Reker, D. Denson, J Endriss) achieved the 95% target control limit throughout the period of record.

Taxonomic Identification QC

According to a description of their QC for the identification of SCI samples, one sample out of all macroinvertebrate taxonomy samples processed by CFTOD is randomly selected each calendar year for reidentification by a qualified taxonomist. Any discrepancies are discussed with the reidentification taxonomist, and a resolution is made. If original identifications are found to be in error, Dana Denson reviews the identification of that taxon, including requesting input from a specialist, if needed. Although CFTOD conducts annual QC checks on all the SCI samples it processes, DEP requests that CFTOD conducts at least one (or 5%) taxonomic QC on all DEP SCI samples each year.

For samples reviewed as a part of this audit, taxa were not always identified to lowest practical taxonomic level which could affect SCI scores as some specimens require lower taxonomic

identifications to be included in SCI metric calculations. DEP understands that this is not always possible due to size, specimen quality, etc. If specimens cannot be identified to the appropriate taxonomic level, a brief comment or notation should be provided. If the information is available in the full reports, it was not obvious to the auditor from the abbreviations or nomenclature used in the files. Other than this issue, the information contained in the full reports was very thorough. CFTOD response to this finding will be to include a note on data sheets when it is not possible to do so and indicating the reason why.

CFTOD performs internal and external taxonomic checks in addition to quarterly quizzes and while records were provided on the overall taxonomic QC results, the name and number of organisms identified in the required QA checks were not provided as a demonstration of proper efficiency calculations.

Metric and Index Calculation

There were several instances where CFTOD's SCI metrics were not calculated correctly although all taxa were assigned and calculated correctly for Ephemeroptera, Trichoptera, and Tanytarsini metrics. Information on DEP's metric assignments can be found in SCI 2100 Section 5 and on the DEP website (SBIO Taxonomic Lists).

Sample 150701: For Rep 1 and 2, CFTOD percent filter feeder metric differed from DEP's calculations (Rep1: CFTOD was 29.87% vs DEP's 17.53%; Rep 2. 20.67% vs 12.00%). This appears to be a result of multiple taxa having dual feeding strategies, and according to SCI 2100 Section 5.5, should be counted as 0.5 individuals. It appears CFTOD counted each taxon as a whole individual thus inflating the metric. CFTOD's Rep. 1 percent very tolerant metric was slightly higher due to the inclusion of *Parachironomus* (16.88% vs 15.58%). Also, CFTOD's clinger metric included taxa not included in DEP's lists resulting in higher values (Rep 1: 2 vs 0; Rep 2: 6 vs 0). The additional taxa for Rep 1 included *Oecetis* and *Tanytarsus allicis* and Rep 2 included Baetidae*, Oecetis, Polypedilum halterale* group*, Polypedilum illinoense* group*, Tanytarsus allicis,* and *Tanytarsus.* CFTOD appears to be including taxa with multiple habits as clinger taxa (*e.g., Oecetis* sp. is a clinger, but it is also a climber and a sprawler). Section 5.5 of SCI 2100 states that clinger taxa only include those taxa whose sole habit is listed as clinger.

Sample 160870: CFTOD reported the percent dominant taxa for Rep. 1 as 20.3% while DEP calculated it as 19.6% (30 *Larsia berneri* individuals / 153 total individuals). In both replicates, there were differences in the filter feeder calculations between DEP and CFTOD. Again, this appears to be a result of several taxa having dual feeding strategies and CFTOD including them as whole taxa. Also, CFTOD did not include *Dicrotendipes* sp. in their filter feeder calculations. There were minor discrepancies between DEP and CFTOD's very tolerant metric calculations (43.8% vs. 41.8%, respectively). For Rep. 2, *Parachironomus schneideri* was listed as a very tolerant taxa by CFTOD for Rep. 2, but it is not listed as such in the DEP SOP. The auditor could not find the source of the error for Rep. 1 (28.6% vs 29.3%). In both replicates, CFTOD listed multiple taxa as clingers (*Nanocladius alternanthae, Polypedilum halterale* group*, Polypedilum, Tanytarsus allicis, Tanytarsus buckleyi, Tanytarsus, Tanytarsus* sp. J) that are not listed as clingers on the DEP website (SBIO Taxonomic Lists) resulting in higher scores (Rep 1: 5 vs 0; Rep 2: 3 vs 0).

Sample 161480: For Reps 1 and 2, CFTOD percent filter feeder metric differed from DEP's calculations (Rep1: CFTOD was 1.92% vs DEP's 1.60%; Rep 2: 8.97% vs 6.90%). As before, this appears to be a result of several taxa having dual feeding strategies and CFTOD including them as whole taxa. CFTOD's clinger metric included taxa not included in DEP's lists resulting in higher values (Rep 1: 6 vs 0; Rep 2: 7 vs 0). The additional taxa for Rep 1 included Baetidae, *Oecetis cinerascens, Oecetis osteni, Oecetis, Orthotrichia*, *Polypedilum halterale* group*,* and *Tanytarsus*. Rep 2 included Baetidae*,* Hydroptilidae, *Oecetis osteni,* Orthotrichia, *Polypedilum halterale* group*, Polypedilum illinoense* group*, Tanytarsus allicis, Tanytarsus, and Tanytarsus* sp F*.* For Reps 1 and 2, CFTOD did not include the long-lived taxa, *Palaemonetes* sp.

Sample 220098: In this more recent sample from 2022, the percent filter feeder metric was calculated correctly. CFTOD's clinger metric included taxa not included in DEP's lists resulting in higher metric values (Rep 1: 18 vs 8; Rep 2: 13 vs 6); however, because metrics greater than 10 are rounded down to 10 when summing metric scores, this did not result in an inflation of the final score as was the case in the previous samples. The additional taxa for Rep 1 included Baetidae, *Dubiraphia vittate*, *Hetaerina titia*, *Microcylloepus pusillus*, *Oecetis persimilis, Polypedilum fallax group, Polypedilum flavum, Polypedilum halterale group, Tanytarsus sp. J, Tanytarsus sp. L complex, Tanytarsus sp. M*. Rep 2 included *Dubiraphia vittata, Neurocordulia alabamensis, Oecetis persimilis*, *Polypedilum fallax* group, *Polypedilum flavum, Tanytarsus buckleyi, Tanytarsus* sp. M. For Reps 1 and 2, *Tanytarsus* sp. M was not included in CFTOD's sensitive taxa count.

When CFTOD metrics were used to calculate the final SCI scores, DEP obtained the same final score for samples 150701 (57) ,160870 (36), and 220098 (79) but for sample 161480, DEP derived a final SCI of 50 compared to 53. When DEP calculated the final SCI score with the re-calculated metrics described in the paragraphs above, the SCI scores were 47 (vs 57), 30 (vs 36), 43 (vs 53), and 80 (vs 79).

These database errors, particularly the inclusion of several additional clinger taxa, artificially increased CFTOD's final SCI scores in the earlier samples and for sample 160870, the difference would have changed the impairment determination. In response to the preliminary audit, CFTOD reprogrammed their internal database and recalculated scores for an additional 16 SCI samples submitted to DEP in 2021-2023 (Table 3).

Data Usability Recommendation

Based on the results of this audit, DEP's use of CFTOD SCI data for assessment purposes is contingent upon CFTOD's implementation of corrective actions provided in the preliminary report. These actions included comparing, correcting, and revising all samples previously processed for DEP purposes, as well as ensuring all other corrective actions have been implemented.

Reedy Creek reprogrammed their internal database and implemented most of the corrective actions and resubmitted documents to DEP on July 14, 2023, along with a subsequent submission received on August 8, 2023. A final submission was sent to DEP's Watershed Assessment Section with the revised scores on September 8, 2023. Table 3 summarizes the revisions and their impact on individual metrics and the final SCI score. Seven of the 16 samples originally had an average score 2-points higher than the recalculated score while 8 of the samples had a 2-point lower score; 1 sample was unchanged. The largest difference was a 5-point higher score than was originally calculated. In no case would the final determination have changed. These corrected data are usable for DEP purposes. DEP may elect to follow-up with CFTOD once samples have been processed using the procedures updated and implemented because of this audit to ensure corrective actions have been executed appropriately.

Table 2. Deficiencies and/or requests for additional information for Laboratory Records of selected SCI sample data produced by CFTOD.

SOP Reference	Sample ID	Audit Finding	Recommended or Required Corrective Action(s)	CFTOD Response	Corrective Action and Implementation Date	DEP Comments
SCI 2100 Section 3.3.2.4	All samples	Taxa not always identified to lowest practical taxonomic level. While DEP understands this is not always possible due to size, specimen quality, etc., DEP requires taxa are identified to lowest possible taxonomic level when possible.	**Required:** Identify taxa to lowest possible taxonomic level when possible. **Recommended:** Add a note that specifies taxa were identified to lowest possible taxonomic level considering the size, quality of specimen, etc.	Taxa will be identified to lowest possible taxonomic level. Taxonomists have been instructed to include a note on data sheets when it is not possible to do so, indicating the reason why.	Taxa will be identified to lowest possible taxonomic level. Taxonomists have been instructed to include a note on data sheets when it is not possible to take to normal taxonomic level, indicating the reason(s) why. Implemented 7/14/2023.	The corrective action is acceptable.
SCI 2100 Section 5.1	161480	CFTOD did not include *Palaemonetes* sp.as a long-lived taxon.	**Required:** Determine which additional samples are affected by this error, recalculate metrics and final scores, and provide updated data to DEP. Update CFTOD database with the current taxonomic lists available on the DEP website (SBIO Taxonomic Lists).	The apparent omission of *Palaemonetes* as a long-lived taxon from the CFTOD database was a **reporting** error in the submitted file "SCI metric and index calculation records". Review of potentially affected previous samples shows that the database has, in fact, been including the genus as a long-lived taxon.	No additional samples were affected. No changes needed.	The response is acceptable.
SCI 2100 Section 5.2	220098	CFTOD did not include *Tanytarus* sp. M as a sensitive taxon.	**Required:** Determine which additional samples are affected by this error, recalculate metrics and final scores, and provide updated data to DEP. Update CFTOD database with the current	*Tanytarsus* sp. M was added to the list of sensitive taxa in our database. Updated data for other SCI samples submitted to DEP is shown in the attached Excel file "Other SCIs	CFTOD's database was updated immediately to include *Tanytarsus* sp. M as a sensitive taxon. Implemented 7/14/2023.	The corrective action is acceptable.

SOP Reference	Sample ID	Audit Finding	Recommended or Required Corrective Action(s)	CFTOD Response	Corrective Action and Implementation Date	DEP Comments
			taxonomic lists available on the DEP website (SBIO Taxonomic Lists).	submitted to DEP affected by audit errors". Taxonomic lists in CFTOD database updated per DEP website. Corrected SCI calculations and scores were submitted to DEP (WAS).	Corrections were sent to DEP Watershed Assessment Section on 9/8/2023.	
SCI 2100 Section 5.3	150701, 160870	*Parachironomus schneideri* was incorrectly classified as a very tolerant taxon by CFTOD in addition to a calculation error that DEP could not replicate.	**Required:** Determine which additional samples are affected by this error, recalculate metrics and final scores, and provide updated data to DEP. Update CFTOD database with the current taxonomic lists available on the DEP website (SBIO Taxonomic Lists) and verify calculations are performed correctly. Submit revised scores to DEP using the WAS Biology template.	None of the additional SCI samples was affected by this error, as shown in Table 3. Taxonomic lists in CFTOD database were updated per DEP website. Corrected SCI calculations and scores were submitted to DEP (WAS).	CFTOD's database was updated immediately to reflect the correct tolerance value for *Parachironomus schneideri*. Implemented 7/14/2023. Corrections were sent to DEP Watershed Assessment Section on 9/8/2023.	The corrective action is acceptable.
SCI 2100 Section 5.5	150701, 160870, 161480	The filter feeder metric was calculated incorrectly in the earlier samples. Taxa with dual feeding strategies were counted as whole taxa. This was corrected in sample 220098 from 2022.	**Required:** Determine which additional samples are affected by this error, recalculate metrics and final scores, and provide updated data to DEP.	Updated data shown in attached Excel file "Other SCIs submitted to DEP affected by audit errors". Reedy Creek database was updated to account for taxa with dual feeding	CFTOD's database changes assigning correct feeding strategy values were made immediately. Implemented 7/14/2023.	The corrective action is acceptable.

SOP Reference	Sample ID	Audit Finding	Recommended or Required Corrective Action(s)	CFTOD Response	Corrective Action and Implementation Date	DEP Comments
			Update CFTOD calculator to account for taxa with dual feeding strategies per taxonomic lists available on the DEP website (SBIO Taxonomic Lists).	strategies per DEP website. Corrected SCI calculations and scores were submitted to DEP (WAS).	Corrections were sent to DEP Watershed Assessment Section on 9/8/2023.	
SCI 2100 Section 5.5	All samples	There are multiple examples of taxa with multiple habits incorrectly included in the clinger metric. Include only those taxa whose sole habit is clinging.	**Required:** Determine which additional samples are affected by this error, recalculate metrics and final scores, and provide updated data to DEP. Update CFTOD database with the current taxonomic lists available on the DEP website (SBIO Taxonomic Lists).	Updated data is shown in attached Excel file "Other SCIs submitted to DEP affected by audit errors". Taxonomic lists in database have been updated per DEP website.	CFTOD's database changes were made immediately to include only those taxa whose sole habit is clinger as clinger taxa. Implemented 7/14/2023. Corrections were sent to DEP Watershed Assessment Section on 9/8/2023	The corrective action is acceptable.
SCI 2100 Section 5.10-5.12	161480	DEP derived a final SCI of 50 compared to 53. The source of this discrepancy is unclear as CFTOD did not provide the formulas for their calculations.	**Required:** Include formulas for calculations in worksheets for DEP to verify calculations are performed correctly.	The score of 53 that was initially reported was a typographical error. The correct value should have been 50, based on an average of two subsample scores, each scoring 50. The formulas used are identical to those given in Table SCI 2100-1 for the Peninsula.	No action needed.	The response is acceptable.
SCI 2200 Section 1	All samples	Reference collection list submitted does not appear to be the complete list when compared to audit conducted in 2016. Lab must contain a current	**Required:** Provide the most complete and up to date version of CFTOD's externally verified reference collection. CFTOD should continue to add to their reference	Because of the way that the reference specimen list was initially extracted from the database, numerous taxa were omitted.	An updated reference collection list is attached to this response. (Note that this revision removes all but five of the taxa shown below in Table	The corrective action is acceptable.

SOP Reference	Sample ID	Audit Finding	Recommended or Required Corrective Action(s)	CFTOD Response	Corrective Action and Implementation Date	DEP Comments
		externally verified reference collection that contains at least one specimen of all taxa identified.	collection as samples are processed and new taxa are encountered.	An updated reference collection list including all verified taxa is attached. CFTOD will continue to have verifications of unverified taxa done.	3.) Effort will be made to secure verified specimens of the five remaining taxa: *Allonais pectinata, Tanytarsus* sp. J, *Labrundinia virescens, Stratiomys,* and *Climacia areolaris.*) Implemented 7/14/2023	
SCI 2220 Section 3.3, SCI 2221	All samples	Name and number of individual organisms identified for each taxon enumerated in the ID QC sample was not documented.	**Required:** Document the name and number of individual organisms identified for each taxon in the QC identifications.	This information is retained in the QA resolution forms. They are available upon request.	This information will be provided upon request. Implemented 7/14/2023.	The response is acceptable.
SCI 2220 Section 1	All samples	According to the file "SCI samples processed for submittal to DEP", no taxonomic QA check were performed on SCI samples from 2017-2023.	**Required**: DEP requests that CFTOD conduct at least one (or 5%) taxonomic QA check on DEP SCI samples each year.	Each year, CFTOD will conduct at least one taxonomic QA check on SCI samples which are submitted to DEP.	CFTOD will conduct at least one taxonomic QA check on DEP SCI samples each year, beginning with the next annual QA check done by outside expert (John Epler). Implemented 7/14/2023.	The corrective action is acceptable.
SCI 2210 Section 1.3-1.4 and SCI 2211	All samples	Documentation missing on total number of mounted microscope slides used.	**Required:** Record total number of mounted microscope slides used.	Since the implementation of CFTOD's current biological database (BMDS) in 2021, CFTOD has kept a record of the number of microscope slides used in each sample. We were unaware that DEP wanted to see this data. We can provide the	This information is already kept in our database as a part of our normal routine. We will provide this information in the future in any audit data requests from DEP. Available data of this sort is included as a	The corrective action is acceptable.

SOP Reference	Sample ID	Audit Finding	Recommended or Required Corrective Action(s)	CFTOD Response	Corrective Action and Implementation Date	DEP Comments
				number of mounted and non-mounted individuals in each sample for which data was requested, as well as the number of microscope slides for the 2-9-2022 sample, but the earlier number of slides data is not available.	separate **tab** called "mounted and wet specimen counts" in file "SCI metric and index calculation records REVISED". Implemented 7/14/2023	

Table 3. Results of recalculations on SCI metrics and final scores for samples not in the original audit request.

Sample Information			Audit Error				Recalculated Metric				
Site	Date	Sample ID	*Palaemonetes* not in long-lived taxa	*Tanytarsus* sp. M **not in** sensitive taxa	Filter feeder metric calculation	Clinger metric calculation	Long-lived metric (previous value)	Sensitive metric (previous value)	% Filter feeder (previous value)	Clinger metric (previous value)	SCI score (previous value)
STW-4M	7/20/2021	210796-C11316	N/A	N/A	affected	affected	1 (1)	5 (5)	44.7 (41.06)	6 (12)	74 (75)
STW-4M	7/20/2021	210796-C11317	N/A	N/A	affected	affected	3 (3)	5 (5)	45.28 (43.4)	7 (15)	81 (83)
STW-4M	1/23/2023	230118-	N/A	N/A	affected	affected	1 (1)	4 (4)	50.33 (42.48)	7 (13)	67 (66)
STW-4M	1/23/2023	230118-	N/A	N/A	affected	affected	2 (2)	3 (3)	43.83 (36.36)	7 (12)	69 (68)
RC-6B	4/5/2022	220380-	N/A	N/A	affected	affected	0 (0)	5 (5)	18.82 (17.65)	8 (13)	68 (69)
RC-6B	4/5/2022	220380-	N/A	N/A	affected	affected	0 (0)	5 (5)	27.6 (27.27)	8 (14)	74 (76)
RC-6B	3/7/2023	230288-	N/A	N/A	affected	affected	1 (1)	3 (3)	20.32 (14.19)	7 (12)	74 (73)
RC-6B	3/7/2023	230288-	N/A	N/A	affected	affected	0 (0)	5 (5)	20.97 (17.42)	9 (16)	75 (74)
RC-13B	5/25/2021	210513-C7650	affected	N/A	affected	affected	2 (2)	4 (4)	16.45 (22.37)	6 (15)	84 (85)
RC-13B	5/25/2021	210513-C7651	affected	N/A	affected	affected	3 (3)	3 (3)	18.51 (20.13)	6 (11)	80 (83)
RC-13B	10/26/2021	211206-C16798	N/A	affected	affected	affected	2 (2)	5 (4)	30.34 (30.34)	8 (17)	88 (85)
RC-13B	10/26/2021	211206-C16799	affected	affected	affected	affected	1 (1)	6 (5)	41.88 (28.75)	8 (16)	86 (81)
RC-13B	6/1/2022	220626-C27221	N/A	affected	affected	affected	1 (1)	6 (5)	61.92 (48.34)	10 (16)	74 (73)
RC-13B	6/1/2022	220626-C27222	affected	affected	affected	affected	1 (1)	5 (4)	53.1 (42.47)	8 (16)	80 (80)
RC-13B	4/18/2023	230440-C43437	affected	affected	affected	affected	3 (3)	4 (3)	22.22 (28.76)	7 (18)	87 (85)
RC-13B	4/18/2023	230440-C43438	affected	affected	affected	affected	3 (3)	3 (2)	20.67 (23.18)	8 (16)	83 (80)